

REMARKS/ARGUMENTS

Reconsideration of the present application is respectfully requested.

Since the present amendment raises no new issues for consideration and, in any event, places the present application in better condition for consideration on appeal, it is respectfully requested that this amendment be entered under 37 C.F.R. § 1.116 in response to the last Office Action dated September 26, 2007, which made final rejections as to the pending claims.

A. **Status of the Claims**

Claims 1-30 are presented for continued prosecution.

Claim 1 has been amended to include the limitations of claims 3 and 6. Claims 3 and 6 have been canceled. Entry of this amendment is respectfully requested, since claims 3 and 6 have already been examined and no further search or consideration is therefore required.

Claims 4, 5 and 13 have been amended as a result of the cancellation of claims 3 and 6.

B. **The Office Action**

Claims 1, 2, 7-12, 16-19, 21-23, and 27-30 have been rejected as being unpatentable over Niira '958 (U.S. 4,938,958). Claims 3-6, 14, 15 and 24-26 had been rejected as being unpatentable over Niira '958 in view of Niira '699 (U.S. 5,556,699). Claim 13 had been rejected as being unpatentable over Niira '958 in view of Neumann (U.S. 4,322,929). Claim 20 had been rejected as being unpatentable over Niira '958 in view of Lindgren (U.S. 5,603,997).

In the prior amendment dated July 17, 2007, Applicant argued that Niira '958 does not teach or suggest a dispersion having a polymer with an acid number less than about 200, and that Niira '958 also does not teach or suggest printing or applying this dispersion onto a material.

The Examiner acknowledged that Niira '958 lacks a specific teaching of the claimed acid number, however, the Examiner maintained the rejection stating that Niira '958 employs the same polymers disclosed by the present invention for the same intended purpose. To support this position, the Examiner stated that Niira '958 explains that his polymers are suitable for printing (see the Response to Arguments section of the Office Action).

Applicant respectfully disagrees with the Examiner's reading of the cited references and submits that the claimed invention is patentable for at least the following reasons.

1. Niira '699 and Niira '958 do not teach or suggest a water-based or solvent-based dispersion

Claim 1 has been amended to recite that the dispersion is water-based or solvent-based. The water-based and solvent-based limitations had been considered by the Examiner beginning on page 4 of the Office Action with regard to claims 3 and 6.

The Examiner rejected claims 3 and 6 based on Niira '699 stating that the resin flakes of Niira '699 can be dissolved in water or in an organic solvent. Applicant respectfully disagrees with the rejection.

The "resin flakes" of Niira '699 are a dried resinous composition, not a water-based or solvent-based dispersion as recited in claim 1. As explained by Niira '699, the resin flakes are dissolved in water or in an organic solvent *when employing the casting method* to provide the resin flakes on a support (see col. 4, lines 52-58 of Niira '699). The casting step is employed after the dried resinous product is formed. Thus, the water and solvent employed by Niira '699 are used subsequent to the formation of the dried product, in order to apply the dried product on a support. The water and solvent of Niira '699 are not part of a dispersion are recited in claim 1.

Similar to Niira '699, the primary reference Niira '958 also forms a dried resinous composition, not a water-based or solvent-based dispersion as recited in claim 1. For example, Niira '958 explains that polyethylene and polypropylene are employed to form a resinous composition with the anti-microbial zeolite (see col. 4, lines 21-25 of Niira '958). This resinous composition is a dried composition (see col. 3, lines 56-58 and col. 5, lines 59-60 of Niira '958). Thus, contrary to the Examiner's statement in the Response to Arguments section of the Office Action, the polymers disclosed by Niira '958 are not employed for the same purpose as the present invention, namely, to provide a water-based or solvent-based dispersion as recited in claim 1. Instead, the polymers of Niira '958 are employed to form a dried resinous composition. This distinction is crucial, and is highlighted in the present application which summarizes the drawbacks of Niira '958 (see line 29 on page 2 to line 3 on page 3 of the application). Since Niira '958 and Niira '699 do not teach or suggest preparing a water-based or solvent-based dispersion as recited in claim 1, Applicant respectfully submits claim 1 is not obvious based on the combination of Niira '958 and Niira '699.

2. Niira '958 does not teach or suggest printing a dispersion having an acid number of less than about 200 as recited in method claim 19

Method claim 19 includes the steps of providing the dispersion of claim 1 (containing a polymer having an acid number of less than about 200) and printing the dispersion onto a surface of a packaging material. Product-by-process claim 28 also includes the method limitations of claim 19.

Applicant has discovered that the dispersions of the present invention having an acid number of less than about 200 can be applied using printing devices, such as rotogravure devices, in a satisfactory manner. This provides a significant advantage over conventional printing techniques, which employed unstable and unprintable dispersions having acid numbers greater than about 200. The inadequacy of the conventional dispersions having high acid numbers was found to be in part caused by the formation of a complex that precipitates and causes the viscosity of the dispersion to increase to a point where the dispersion cannot be printed (see page 4, lines 10-25 of the application).

Some of the advantages of the present invention using the claimed dispersion and printing method are demonstrated in Example 5 beginning on page 17 of the application. As shown in Example 5, a dispersion having a Joncryl 678 resin with an acid number above the claimed range (acid number of 215) became unstable because the viscosity of the solution increased and eventually caused settling of the resin as a metal complex. In contrast, a dispersion having Joncryl 80 with an acid number within the claimed range (acid number of 60) did not cause settling to occur (see lines 4-5 on page 18 of the application).

Settling was also observed when employing Joncryl DFC-3015 (acid number of 240) and Joncryl DFC-3025 (acid number of 220) each having acid numbers above the claimed range. Again, no settling was observed when employing Joncryl DFC-3030 (acid number of 64) or Joncryl DFC-3040 (acid number of 55) each having acid numbers within the claimed range (see lines 6-9 on page 18 of the application).

In Example 7 beginning on page 18 of the application, Applicant stated that the low acid number of the polymers of the claimed invention contributes to the stability of the dispersions and their suitability for printing (see lines 1-4 on page 19 of the application). The dispersions of the present invention may therefore be applied using conventional printing equipment, thereby

achieving a relatively inexpensive and versatile method for providing anti-microbial coatings onto materials (see line 33 on page 5 to line 10 on page 6 of the application).

Niira '958 does not teach or suggest the method steps of claim 19, which include providing a dispersion having an acid number of less than about 200, and printing the dispersion onto a material.

Thus, the evidence of a patentable and unobvious invention embraced by claims 19 et seq. is compelling. The steps of preparing of a dispersion and printing thereof on a material is in no way rendered obvious by Niira '958.

In the Response to Arguments section of the Office Action, the Examiner maintained the rejection of claim 19 based on the reasoning that Niira '958 employs the same polymers (polyethylene and polypropylene) for the intended purpose disclosed by the present invention. The Examiner also stated that Niira '958 teaches that his polymers are suitable for printing. Applicants respectfully disagree with both of these matters.

Contrary to the Examiner's assertion, Niira '958 does not teach or suggest printing any composition, let alone a water-based or solvent-based dispersion as recited in claim 19. Instead, Niira '958 teaches forming a dried composition by kneading the polymer with the zeolite or by coating the zeolite onto the surface of the polymer (see col. 4, lines 34-37 of Niira '958). Direct mixing of the zeolite with a polymer and other methods are also described by Niira '958 (see col. 4, line 56 to col. 5, line 14 of Niira '958). However, it is clear that no water-based or solvent-based dispersion is made. None of the Niira '958 methods employ the printing techniques embraced by the claims, i.e. rotogravure, flexography, etc (see claims 22 and 23). Applicant therefore submits that Niira '958 does not teach or suggest the step of printing a water-based or solvent-based dispersion as recited in claim 19.

The simple mention of polyethylene and polypropylene in the disclosure of Niira '958 does not imply that Niira '958 prints a water-based or solvent-based dispersion as recited in claim 19. The polyethylene and polypropylene taught by Niira '958 are employed to form a resinous composition with the anti-microbial zeolite. This resinous composition is a dried composition (see col. 3, lines 56-58 and col. 5, lines 59-60 of Niira '958). Thus, the polymers disclosed by Niira '958 are not employed for the same purpose as the present invention, namely, to provide a water-based or solvent-based dispersion as recited in claim 19. As mentioned above, this distinction is crucial and is summarized in the present application (see line 29 on page 2 to line 3

on page 3 of the application). Applicant also emphasizes that claim 19 is a method claim, and each method step must be taught or suggested to support the rejection. Since Niira '958 does not teach or suggest the step of providing a water-based or solvent-based dispersion as recited in claim 19, Applicant respectfully submits claim 19 is not obvious based on Niira '958.

In addition, as explained above, the examples of the application demonstrate that printing can be satisfactorily accomplished when the acid number of the polymer in the dispersion is less than about 200. This limitation is included in claim 19, which recites printing the water-based or solvent-based dispersion of claim 1 (having a polymer with the claimed acid number). Niira '958 does not teach or suggest the criticality of the claimed acid number with regard to printing a dispersion as demonstrated by the examples of the application. In fact, Niira '958 is completely silent with respect to forming any dispersion (let alone a dispersion having a polymer with the claimed acid number), and is completely silent with respect to printing any composition (let alone a water-based or solvent-based dispersion).

In this regard, the Examiner referred to Stranghøner (U.S. 4,851,460) for the proposition that it would be obvious to choose an appropriate acid number. Although Stranghøner was mentioned only in the Remarks to Arguments section of the Office Action and was not officially cited to reject the claims, Applicant notes that Stranghøner is completely unrelated to antimicrobial zeolite compositions. Thus, Stranghøner does not teach or suggest that printing can be satisfactorily accomplished when the acid number of a polymer in a dispersion is less than about 200. Stranghøner is not concerned with antimicrobial zeolite water-based or solvent-based dispersions, and therefore does not cure the defects of the primary references.

Applicant respectfully submits that method claim 19 is patentable over the cited references.

3. Niira '958 does not teach or suggest applying a dispersion having an acid number of less than about 200 as recited in method claim 29

Similar to method claim 19, method claim 29 recites the step of providing a dispersion of claim 1.

For the reasons explained above, Applicant submits that claim 29 is not obvious based on the teachings of Niira '958, because Niira '958 does not teach or suggest the criticality of

providing a dispersion having a polymer with an acid number of less than about 200 as demonstrated by the examples of the application.

4. Niira '958 does not teach or suggest a dispersion having a polymer with an acid number within the ranges of claims 11 and 12

Claim 11 recites that the acid number of the acrylic polymer in the dispersion is from about 45 to about 192. Claim 12 recites that the acrylic polymer in the acrylic emulsion has an acid number of 64 or 55.

In the Response to Arguments section of the Office Action, the Examiner stated that the polyethylene and polypropylene disclosed by Niira '958 have acid numbers of zero. However, in the current or prior Office Actions, it appears that a reference was not cited to teach the acid numbers of claims 11 and 12. Based on the criticality of the range of the acid number of the invention demonstrated in the examples of the application, Applicant respectfully submits that employing polymers having the acid numbers of claims 11 and 12 is not obvious based on the teachings of the cited references.

- C. Rejections based on the combinations of Niira '958, Niira '699, Neumann and Lindgren

Claims 3-6, 14, 15 and 24-26 had been rejected as being unpatentable over Niira '958 in view of Niira '699 (U.S. 5,556,699). Claim 13 had been rejected as being unpatentable over Niira '959 in view of Neumann (U.S. 4,322,929). Claim 20 had been rejected as being unpatentable over Niira '958 in view of Lindgren (U.S. 5,603,997).

Claims 3-6, 13-15, 20 and 24-26 ultimately depend on independent claims 1 and 19. For the reasons set forth above, it is believed that claims 1 and 19 are patentable over the teachings of the cited references. It is therefore believed that dependent claims 3-6, 13-15, 20 and 24-26 are patentable as well.

- D. Fees

This Response is being filed within four months from the mailing date of the Office Action. A one month extension of time is requested and the fee is included herewith. No further fee is believed to be due. If, on the other hand, it is determined that further fees are due or any overpayment has been made, the Assistant Commissioner is hereby authorized to debit or credit

such sum to Deposit Account No. 02-2275. Pursuant to 37 C.F.R. 1.136(a)(3), please treat this and any concurrent or future reply in this application that requires a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. The fee associated therewith is to be charged to Deposit Account No. 02-2275.

E. Conclusion

In view of the actions taken and arguments presented, it is respectfully submitted that each and every one of the matters raised by the Examiner has been addressed by the present amendment and that the present application is now in condition for allowance.

An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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